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# 1982 BAY AREA AIR QUALITY PLAN

*San Francisco bay area*

*December 82*

**EXECUTIVE  
SUMMARY**

PREPARED BY:  
ASSOCIATION OF BAY AREA GOVERNMENTS  
BAY AREA AIR QUALITY MANAGEMENT DISTRICT  
METROPOLITAN TRANSPORTATION COMMISSION  
WITH THE ASSISTANCE OF:  
CALIFORNIA AIR RESOURCES BOARD  
CALIFORNIA DEPARTMENT OF TRANSPORTATION

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EXECUTIVE SUMMARY

Prepared by

Association of Bay Area Governments  
Bay Area Air Quality Management District  
Metropolitan Transportation Commission

Hotel Claremont, Berkeley, California 94705

December 1982



## INTRODUCTION

This Executive Summary is prepared as a guide for those interested in the highlights of the 1982 Bay Area Air Quality Plan and its contents. It contains:

Part One--an annotated Table of Contents from the 1982 Plan;

Part Two--the entire text of Section I of the 1982 Plan, which describes and summarizes the air quality issues and control strategies contained in the Plan; and

Part Three--a listing of the technical memoranda which were prepared to develop specific parts of the Plan.

Copies of the technical memoranda and the entire volume of the 1982 Air Quality Plan are available for purchase from ABAG. Copies of the Plan are also available at public libraries throughout the Bay Area.



PART ONE

Annotated Table of Contents from the 1982 Plan



## ANNOTATED TABLE OF CONTENTS

### SECTION I. SUMMARY OF THE PLAN

A complete copy of this section is included in this Executive Summary.

### SECTION II. BACKGROUND OF THE PLAN

This section discusses the recent history and findings of the 1979 Bay Area Air Quality Plan, the revisions of the previous assumptions and recommendations contained in the 1982 Plan, and descriptions of the relevant EPA requirements and institutional organization which went into the development of the 1982 Plan.

### SECTION III. PRESENT AND PROJECTED EMISSIONS, AIR QUALITY AND EMISSION REDUCTION TARGETS

This section discusses the current and projected emission levels of sulfur dioxide, total suspended particulates, nitrogen dioxide, carbon monoxide and ozone, with special attention to the latter two since they are of the greatest regional significance. Information on the air quality modeling systems used to assess future emissions, air quality and control requirements is also included.

### SECTION IV. OZONE CONTROL STRATEGY DEVELOPMENT

This section summarizes the alternative ozone control measures (including motor vehicle inspection and maintenance, stationary source and transportation controls, and administrative programs for long-term maintenance) considered for the Plan, an assessment of their cost and effectiveness, and whether they were recommended for implementation, contingency or were considered not reasonably available.

### SECTION V. CARBON MONOXIDE CONTROL STRATEGY DEVELOPMENT

Alternative control measures for carbon monoxide (including motor vehicle emission controls, transportation controls and land use measures) are presented. In addition, area-specific control measures are discussed for the downtown areas of the cities of San Jose and Oakland, two carbon monoxide "hotspots."

### SECTION VI. THE BENEFITS OF CLEANER AIR

This section discusses the effects of air pollution (particularly ozone and carbon monoxide) on human health, vegetation and materials.

### SECTION VII. FUTURE ACTIVITIES

Activities identified as important for future air quality planning are discussed in this section, including: assessing regional economic trends, social and political trends, etc., and their potential impact on air quality; the development of a system for monitoring trends in regional travel; and the preparation of annual air quality reports and a Plan Update.

## APPENDIX A - STATIONARY SOURCE CONTROL MEASURES

Each of 42 stationary source control measures is described according to its emission estimates, cost effectiveness, reactivity, year of adoption, implementation schedule, description of the measure, probable method of control, and other impacts and comments.

## APPENDIX B - TRANSPORTATION CONTROL MEASURES

Each of 10 transportation control measures is described, including emission estimates, cost, implementation schedule, and other impacts.

## APPENDIX C - ADDITIONAL MEASURES RECOMMENDED BY THE JOINT AIR QUALITY PLANNING AND ADVISORY COMMITTEE FOR CONSIDERATION IN THE DRAFT 1982 PLAN

This section describes various measures which were considered during the Plan development process. Included are descriptions of land use controls, a proposed procedure to review development projects which attract or generate traffic, increased public support for transit, and additional transportation measures identified by the California Air Resources Board for consideration.

## APPENDIX D - CONTROL MEASURES CONSIDERED NOT REASONABLY AVAILABLE

Various stationary source and transportation measures which were considered in the development of control alternatives, but not finally recommended are listed here.

## APPENDIX E - EMISSION INVENTORIES, 1979-2000

Annual average emissions in tons/day of particulates, sulfur dioxide, carbon monoxide, reactive organics and oxides of nitrogen are listed by source categories.

## APPENDIX F - AMENDMENT TO THE ENVIRONMENTAL IMPACT REPORT ON THE SAN FRANCISCO BAY AREA ENVIRONMENTAL MANAGEMENT PLAN

This is an amendment to the previous EIR for the San Francisco Bay Area Environmental Management Plan which includes a summary of proposed control measures and their environmental, institutional/financial, economic and social impacts.

## APPENDIX G - DIRECT AND INDIRECT EMISSIONS ASSOCIATED WITH MAJOR FEDERAL ACTIONS, 1982-1987

This section discusses EPA's requirement that plans should identify direct and indirect emissions associated with major federal actions. Several activities are identified as major federal actions which fall into this category.

## APPENDIX H - TRANSPORTATION CONFORMITY ASSESSMENT AND CONTINGENCY PLAN

This section outlines the procedures to be used by the Metropolitan Transportation Commission to ensure that projects, programs and plans under its approval conform to Section 176(c) of the Clean Air Act.

## APPENDIX I - IMPLEMENTATION COMMITMENTS

Association of Bay Area Governments, the Bay Area Air Quality Management District and the Metropolitan Transportation Commission documents outlining the implementation commitments of each agency in air quality planning.

## APPENDIX J - SUMMARY OF PUBLIC COMMENTS

Includes a list of public meetings to review the draft plan, as well as the public comments received.

## APPENDIX K - CALIFORNIA AIR RESOURCES BOARD NEW VEHICLE STANDARDS SUMMARY

This section outlines exhaust emission standards for passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty engines and vehicles and motorcycles.



PART TWO  
Section I of the 1982 Air Quality Plan



## SECTION I

### SUMMARY OF THE PLAN

The purpose of this plan is to update and revise the 1979 Bay Area Air Quality Plan, which is part of the State Implementation Plan for California, and is also part of the San Francisco Bay Area Environmental Management Plan.

This plan describes the Bay Area's air quality problems and outlines the control programs needed to solve them. It addresses air quality standards set by the federal government to protect public health, and sets forth an approximate time schedule for adopting and implementing the control programs necessary to attain the federal air quality standards for ozone and carbon monoxide by the 1987 deadline specified by the Clean Air Act.

### REVIEW OF THE 1979 BAY AREA AIR QUALITY PLAN

The 1979 Plan contained four major program elements:

- o Use of available control technology on existing stationary sources
- o New source review
- o Motor vehicle inspection and maintenance
- o Transportation system improvements

At that time, it was projected that implementation of these programs would result in attainment of the federal ozone and carbon monoxide standards by 1985. Three major factors have led to the need for 1982 Plan revisions:

- o Authorization for the motor vehicle inspection and maintenance program adopted in the 1979 Plan had not yet been provided by the California legislature.
- o The regulations adopted by the BAAQMD to implement new source review and the use of available control technology and new source review are less effective than assumed in the 1979 Plan.
- o Significant improvements have been made in the data base and models used to forecast future air quality.

### PRESENT AND PROJECTED AIR QUALITY PROBLEMS

In the Bay Area, federal standards for ozone ( $O_3$ ) and carbon monoxide (CO) are exceeded, and this plan is directed at these two pollutants. Federal standards for sulfur dioxide (SO<sub>2</sub>) and nitrogen

dioxide ( $\text{NO}_2$ ) are being met, and are not expected to be a problem in the future. The federal secondary standard for total suspended particulates (TSP) is exceeded on occasion, and was addressed in a separate plan revision submitted to the Environmental Protection Agency in 1980, and approved by EPA on March 29, 1982.

### Ozone

The most complex air quality problem in the Bay Area is the ozone problem. The federal one-hour standard is 12 parts per hundred million (pphm), while the levels measured in the Bay Area (primarily in the Santa Clara Valley) reach 19 pphm. Ozone is not emitted directly into the atmosphere, but is produced in the atmosphere through a complex series of chemical reactions involving hydrocarbons (organic compounds) and oxides of nitrogen ( $\text{NO}_x$ ). High ozone levels occur primarily during the summer and early fall; the number of days that the ozone standard is exceeded varies from year to year depending on meteorological conditions. In 1979 there were 15 exceedances recorded.

In the Bay Area the most efficient way to reduce ozone levels is to reduce hydrocarbon emissions. In 1979 there were 732 tons of hydrocarbons emitted per day in the Bay Area, not including emissions from natural vegetation. By 1987 emissions will be reduced to 515 tons per day due to the implementation of existing and previously adopted control programs as described in the 1979 Bay Area Air Quality Plan.

There is no single, major source of hydrocarbon emissions; instead, there are many sources of different types and magnitudes (e.g., cars, trucks, industries, petroleum-based solvents and other products, etc.) spread over the entire region. Moreover, the long history of air pollution control in the Bay Area means that the most effective and cost-effective control options have already been implemented. The remaining options will generally cost more and have less effect than those now being implemented. By 1987 the maximum hourly ozone level is projected to be 14.4 pphm, 2.4 pphm above the federal standard. To achieve this final increment of air quality improvement, hydrocarbon emission reductions of approximately 85 tons per day are required. (This value will vary slightly depending on the mix of sources and hydrocarbon species that are controlled.)

### Carbon Monoxide

Carbon monoxide is a sub-regional air quality problem caused almost exclusively by motor vehicle exhausts. The major problem area is the Santa Clara Valley, centered on San Jose; other problem areas exist in Oakland and Vallejo. The federal one-hour CO standard of 40 mg/m<sup>3</sup> (35 ppm) has not been exceeded in the Bay Area; the eight-hour standard of 10 mg/m<sup>3</sup> (9 ppm) was exceeded on 21 days in 1979, with levels reaching 18 mg/m<sup>3</sup>. These exceedances occur in areas where two criteria are met: 1) high traffic density; and 2) adverse meteorological conditions produced on stagnant, winter evenings with surface-based radiation inversions. This combination of factors occurs most frequently and most intensively in the Santa Clara Valley.

Hot spot CO monitoring programs were conducted in San Jose and other locations in the Santa Clara Valley during the winters of 1978, 1979, and 1980. These studies have revealed the occurrence of high background CO levels on stagnant winter evenings. This means that the high CO levels measured are due more to areawide CO emissions than emissions from a specific highway or intersection. This phenomenon strongly suggests that street or intersection-specific traffic controls will be relatively ineffective in reducing ambient CO levels, and that control programs that are applied over wider areas will be most effective. By 1987, maximum 8-hour CO concentrations in downtown San Jose are projected to be reduced to 13.7 mg/m<sup>3</sup> by existing control programs, 3.7 mg/m<sup>3</sup> above the federal standard. Thus, a 27% reduction in CO emissions in the San Jose area will be necessary to meet that standard.

#### **PROPOSED CONTROL PROGRAMS**

The 1982 Bay Area Air Quality Plan recommendations are divided into two parts, addressing ozone and carbon monoxide separately. Each of these parts is further divided into primary and contingency components: the primary component contains those control measures that are recommended for implementation at this time; the contingency component contains those control measures that are recommended for later evaluation and implementation if it is demonstrated that reasonable further progress toward attainment of federal standards cannot be achieved with the primary measures. Other control measures that were considered in the process but judged to be not reasonably available are summarized in Appendix D.

The proposed control programs (not including contingency measures) and their impacts are summarized in Table 1. Brief descriptions of each measure follow.

#### **Motor Vehicle Inspection and Maintenance**

A motor vehicle inspection and maintenance (I/M) program is a vital link in the overall strategy for both ozone and carbon monoxide. The most recent version of I/M legislation, SB 33 (Presley), was finally passed by the legislature and signed into law on September 10, 1982. A biennial inspection program with a 25% vehicle emission reduction effectiveness is assumed for this measure.

#### **Gasoline Conservation Awareness Program (GasCAP)**

GasCAP is a comprehensive program to help reduce motor vehicle fuel consumption by vehicle fleets without impairing services. It establishes training programs within employer groups to teach proper trip planning, vehicle maintenance, and driving techniques to conserve fuel. During 1980, there was a demonstrated 10 to 46 percent reduction in fuel use by participating agencies; the concomitant modification of driving behavior is expected to produce changes in the driving cycle which result in a net reduction in vehicle emissions.

## Stationary Source Control Measures

Twenty-three new regulations are proposed by the Bay Area Air Quality Management District for implementation. An additional eleven regulations are proposed for the contingency portion of the plan. These regulations all act to reduce hydrocarbon emissions, thereby reducing ozone levels in the region.

### PROPOSED FOR IMPLEMENTATION

**Tanker Ballasting:** The Coast Guard has adopted a rule requiring segregated ballast or a washed ballast tank and an inert gas system for tankers larger than 40,000 DWT.

**Reciprocating Engines (gasoline/gas fuel):** New rule requiring reduction of hydrocarbon emissions from reciprocating engines. Replace two-cycle engines with four-cycle; replace four-cycle engines with electric motors where possible.

**Gasoline Distribution:** Modify Regulation 8 - Rule 6 and Rule 7 by lowering exemption cut-offs to require Phase I and Phase II controls at additional service stations.

**Pesticides:** New rule banning the use of weed oil, requiring the use of water or other non-VOC carriers and limiting overspray.

**Wood Furniture Coating:** New rule requiring 50% reduction of VOC through the use of low solvent coatings and high transfer efficiency spray methods.

**Organic Chemical Manufacturing:** New rule requiring control of volatile organic compound (VOC) fugitive emissions from pumps, compressors, process vessel depressurization and process relief valves. Limits would be similar to existing limits for petroleum refining plants.

**Aerospace Assembly and Coating Operations:** Regulation 8 - Rule 29 is being developed, with an independent workshop schedule.

**Consumer Solvents:** New rule limiting the organic content of consumer products. Rules to be developed on a product-by-product basis. Reformulate to lower reactivity/quantity of VOC diluents and propellants.

**Coating of Plastics:** New rule would require control of VOC emissions by the use of low-solvent coatings or equivalent control by condensation, adsorption, incineration, etc.

**Semiconductor & Printed Circuit Board Manufacturing Operations:** New rule would require control of significant solvent emitting sources by condensation, adsorption, etc.

**Industrial Maintenance Coatings:** New rule requiring the use of low solvent coatings for some industrial maintenance applications.

**VOC Storage:** Modify Regulation 8 - Rule 5 by lowering control requirement cut-offs from 1.5 psia and 40,000 gallons to 0.5 psia and/or 10,000 gallons.

**Large Commercial Bakeries:** New rule requiring control of oven VOC emissions from large commercial bakeries.

**Zero Gap Seals for Floating Roof Tanks:** Modify Regulation 8 - Rule 5 to require installation of "zero gap" seals on most floating roof tanks.

**Polymer and Resins Manufacturing:** New rule requiring control of VOC emissions from reactor vessels, etc., by condensation, adsorption.

**Rubber/Plastic Products Manufacturing:** New rule requiring control of VOC emissions from molding, curing, cementing, etc., by condensation, adsorption or incineration.

**Coatings Manufacturing:** New rule requiring control of VOC emissions from reactors, blenders, mixers, and transfer and storage. Requirements would be similar to existing requirements for pharmaceutical products in Regulation 8 - Rule 24.

**Natural Gas and Crude Oil Production:** New rule requiring control of VOC fugitive emissions from valves, flanges, pumps, compressors, relief valves, and storage tanks. Limits would be similar to existing limits for petroleum refining plants.

**Sanitary Landfill Sites:** New rule requiring the installation of gas collection systems. Gas would be combusted directly or separated into a saleable methane portion and a non-methane portion, to be incinerated.

**Vegetable Oil Manufacturing:** New rule requiring control of VOC emissions from extractors, desolventizers, dryers, coolers and conveyors by a mineral oil scrubber and proper maintenance and operation per draft EPA CTG.

**Volatile Organic Waste Disposal:** New rule requiring stripping and recovery of VOC from wastes prior to disposal.

**Automobile Refinishing:** New rule requiring 50% reduction of VOC emissions by lowering VOC content of automobile refinishing coatings.

**Letterpress/Offset Printing:** Modify Regulation 8 - Rule 20 by deleting letterpress/offset exemption and adding specific VOC emission limits.

## **PROPOSED FOR CONTINGENCY**

**Architectural Coatings:** Modify Regulation 8 - Rule 3 by lowering the VOC content limit for flat coatings from 250 to 125 grams per liter.

**Ship, Barge, Tanker and Railcar Loading:** New rule(s) requiring 90 to 95% control of VOC emissions by vapor balance, condensation, etc.

**General Solvent and Surface Coating Operations:** Modify Regulation 8 - Rule 4 by lowering hourly and daily VOC emission limits.

**Pleasure Boats** (gasoline and diesel fuel): New rule requiring hydrocarbon controls on new engines.

**New Source Review:** Modify Regulation 2 - Rule to increase the onsite offset ratio for VOC from 1.0:1 to 1.1:1 or 1.2:1 on an annual average basis.

**New Service Stations:** Modify Regulation 8 - Rule 7 to require the use of vacuum assist vapor recovery systems for vehicle fueling at new service stations.

**Lawnmowers:** New rule banning the sale of two-cycle lawnmowers and limiting hydrocarbon emissions from new four-cycle engines.

**Off-Road Motorcycles** (gasoline two-cycle): New rule banning the sale of new two-cycle engines in favor of four-cycle.

**Wineries:** New rule requiring control of VOC emissions during fermentation by condensation, absorbtion, etc.

**Marine Vessel Gas-Freeing:** New rule would require gas freeing be conducted outside District waters with exceptions for safety considerations, etc.

**Marine Lightering:** New rule to reduce organic emissions from lightering through use of deep draft vessels, minimum ullage requirements, etc.

## Transportation Control Measures

Ten transportation measures are proposed for implementation. These measures act to reduce both hydrocarbon and carbon monoxide emissions regionwide.

## **PROPOSED FOR IMPLEMENTATION**

1. Reaffirm commitment to 28% transit ridership increase between 1978 through 1983.

2. Support post-1983 improvements identified in transit operators' 5-year plans; after consultation with the operators adopt ridership increase target for 1983-1987.
3. Seek to expand and improve public transit beyond committed levels.
4. Continue to support development of HOV lanes. (Emission reduction credit would not be allowed for specific projects until environmental studies were completed and funds were programmed.)
5. Continue to support RIDES efforts.
6. Continue efforts to obtain funding to support long-range transit improvements.
7. Reaffirm commitment to preferential parking programs.
8. Encourage transit operators to work with Caltrans to identify under-utilized lots along major transit lines which could be used as park-and-ride lots.
9. Expand the Commute Alternatives Program.
10. Develop information program on traffic and air quality mitigation measures for local governments.

In addition to these programs the Commute Transportation Program being developed and implemented by the Santa Clara County Transit District is a crucial program for attainment of the CO standard in San Jose.

#### **PROPOSED FOR CONTINGENCY**

No contingency transportation measures have been identified for ozone. Selection of such measures will take place within six months of a determination that reasonable further progress toward attainment of the ozone standard is not being made. For carbon monoxide, the recommendations of the Santa Clara Valley Corridor Evaluation, including a light rail transit system for the Guadalupe Corridor, are included as contingency. (This measure is being pursued independently, but is included as contingency because funding is not certain at this time.) Also included as contingency are two programs being pursued by the City of San Jose: 1) development of parking management policies for the downtown area; and 2) improvements in downtown traffic circulation, including signal interconnects.

In addition to the programs mentioned above, a comprehensive transportation and air quality study of projected Oakland central business district development is proposed. This study is recommended because of the large number of sizeable projects recently proposed for that area where excesses of the CO standard are known to occur.

No additional control programs are recommended for Vallejo since it is projected to attain the CO standard by 1987 with existing control programs.

#### Administrative Programs for Long-Term Maintenance

Two administrative programs that would enhance the ability of the region to maintain improved air quality over the long term are recommended for the plan. Those measures are:

**Advisory Review of Projects and Plans:** This program is directed toward new or modified facilities, both public and private, and plans that could result in significant impacts on air quality. Such facilities would include major shopping centers, office developments, large housing developments, highways, airports, parking structures and entertainment complexes. While they are not direct air pollution sources themselves, they do attract large volumes of vehicle traffic which can lead to air quality problems. Such review systems are currently in effect on a mandatory basis at Lake Tahoe and other areas in the nation. The Advisory Review system proposed here would be, as the name implies, advisory in nature. It would be conducted administratively as part of Plan and Project Review functions and would use the existing California Environmental Quality Act environmental document process as the primary vehicle for receiving information and communicating comments. The three co-lead air quality planning agencies (ABAG, MTC, BAAQMD) would participate and issue coordinated comments on specific projects, and would work with cities, counties and project sponsors to minimize adverse air quality impacts.

**Conformity Assessment of Federally-Supported Activities:** This program would implement the requirements of Sections 176(c) and 316 of the Clean Air Act, which require that federally-supported activities be in conformance with the State Implementation Plan for an area.

The proposed program would be conducted as part of ABAG's Plan and Project Review function. As the areawide clearinghouse for all federal grant applications (under requirements of the Federal Intergovernmental Cooperation Act and the Federal Demonstration Cities and Metropolitan Development Act), ABAG's Executive Board comments on federal grant applications for conformity with adopted regional policies, including provisions of the air and water quality management plan. Hence, conformity assessment under the two Clean Air Act sections cited above can be easily conducted using ABAG's existing Plan and Project Review function.

#### LAND USE MEASURES

Land use measures, along with transportation control measures, are needed to curb auto emissions as the region grows, and assure maintenance of adequate air quality to the year 2000 and beyond. However, this plan does not advocate that regional policy bodies should require land use control measures. Cities and counties should consider modifying their general plans to: contain development in urban service areas with urban services in place; encourage mixed-use development and infill on vacant land at densities sufficient to support transit; and encourage rehabilitation and reuse of older buildings.

## BENEFITS AND COSTS OF THE PLAN

Reducing ambient ozone and carbon monoxide will result in benefits in three major areas:

- o improvements in public health
- o reduction in damage to vegetation
- o reduction in damage to other materials

Ozone causes a wide variety of health problems including: irritation of the eyes and mucous membranes, impaired lung function and changes in the cellular composition of the lungs, increased susceptibility to infectious disease, biochemical imbalances in the lungs and other organs, rapid pulse, cough, chest discomfort, and a general decrease in human performance. Exposure to ozone also aggravates conditions such as asthma, chronic bronchitis and emphysema.

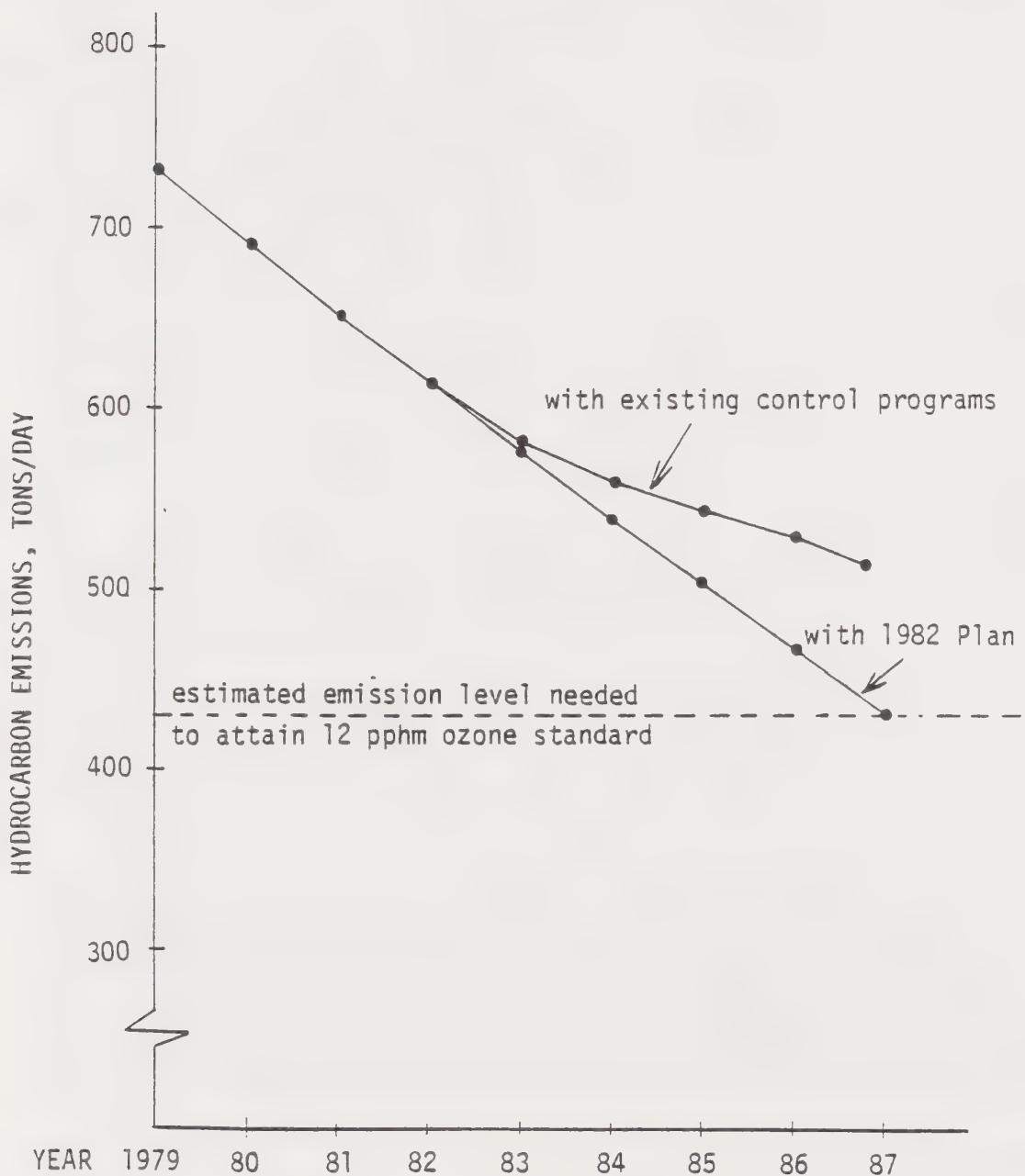
Ozone also has negative effects on a variety of plants and man-made materials. The economic losses nationwide due to vegetation damage from ozone and other photochemical oxidants was estimated in 1978 to be \$300 million per year. Ozone has been shown to cause more rapid deterioration of rubber products, fading in textiles, paints and dyes, and more rapid deterioration of fibers in many textile products.

The primary effect of carbon monoxide is to displace oxygen in the blood which, in turn, decreases the supply of oxygen to various parts of the body, particularly the cardiovascular and central nervous systems. Exposures to levels as low as 15 ppm have produced cardiovascular and nervous system effects such as decreased alertness, muscular incoordination, decreased learning ability and visual perception, changes in sleep patterns and decreased manual dexterity. In addition, large segments of the population are at increased risk from CO exposure; such high risk groups include fetuses, persons with cardiovascular or nervous system conditions, sickle cell anemics, the young and the elderly.

The costs of these effects lie primarily in terms of human suffering, inconvenience, incapacitation and ecological damage. The benefits of controlling ozone and carbon monoxide lie in the reduction or elimination of such effects. The annual costs of implementing the proposed control programs are indicated in Table 1 and total approximately \$100 million. This amounts to an annual cost of about \$20 per person or \$50 per household, on the average, in the Bay Area.

## IMPLEMENTATION SCHEDULE

The proposed control programs are targeted for phased implementation between 1983 and 1987, beginning with the most effective programs. Rough dates are indicated in Table 1 in each case. Figure 1 illustrates the overall year-by-year progress that is expected for hydrocarbon emission reductions with both existing and proposed control programs.



**Figure 1. Schedule of Hydrocarbon Emission Reduction Proposed to Achieve the Federal Ozone Standard in the San Francisco Bay Area**

## ANNUAL AIR QUALITY REPORTS

Annual air quality reports are prepared in response to Sections 171, 172, and 173 of the 1977 Clean Air Act Amendments, and in response to annual report requirements issued by the U.S. Environmental Protection Agency and the California Air Resources Board. Their purpose is to provide the public and regulatory agencies with a progress report on the effectiveness of air pollution control programs in reducing both emissions and ambient levels of air pollutants in the Bay Area.

The goal of the 1982 Bay Area Air Quality Plan is to achieve ambient air quality standards in the Bay Area by 1987 by controlling pollutant emissions. Assessing the effectiveness of control programs on an annual basis will identify successes or failures of the programs in meeting the goal of the 1982 Plan. If emissions are not decreasing at rates that will allow standard attainment by 1987, then further controls must be adopted and implemented.

Thus, the annual reports will serve as the principal vehicle for determining needs, evaluating options, and amending the plan. Future annual reports will include the following items:

- o Updated emission inventories and emission inventory projections;
- o Updated assessments of ambient air quality in the proceeding year and developing trends;
- o Updated assessments of demographic and economic trends which affect air quality in the Bay Area;
- o Results from a regional travel monitoring system designed to track trends in vehicular travel in the Bay Area;
- o Review of progress in implementing the control programs adopted in the 1979 and 1982 Bay Area Air Quality Plans;
- o Review of changes in the specification of reasonably available control technology (RACT) and best available control technology (BACT) for various source categories;
- o Updates on the Air Resources Board's suggested control measure (SCM) process, and the applicability of such SCMs to the Bay Area;
- o Review of new state and federal regulations pertaining to the Plan or to sources affected by the Plan, as needed;
- o Assessment of whether "reasonable further progress" toward attainment of federal air quality standards was achieved during the previous year.

Uncertainties in the data and evaluating methodologies make monitoring for reasonable further progress an important element of the carbon monoxide control strategy. For instance, actual I/M program effectiveness will be a function of the selected emissions testing methods, stringency factor and quality control methods. As the program is implemented in the Bay Area, lower (or higher) emission reductions may be found than currently estimated for the Plan.

The Santa Clara County Transit District has established an ambitious target for their Commute Transportation Program. The targeted reduction in single-occupancy auto commuting constitutes an important element in the strategy to reduce emissions on an areawide basis. If the reductions are not fully realized, alternative measures will be needed. Therefore, a program for evaluating reasonable further progress will be developed that includes the following:

- o An annual program of traffic counts at key intersections in downtown San Jose.
- o A procedure to assess the effectiveness and progress of the Commute Transportation Program.
- o The tracking of the effectiveness of motor vehicle inspection and maintenance in reducing vehicular emission rates.
- o The tracking of vehicle turn-over and deterioration rates.
- o The tracking of ambient carbon monoxide levels in San Jose.
- o Implementation of Advisory Review and Conformity Assessment Programs.

Future funding for this activity is uncertain, and the depth of coverage of each of these items will vary depending on the resources that can be made available for this purpose.

#### 1984 PLAN UPDATE

In addition to the preparation of annual reports, both the Bay Area Air Quality Management District and the Association of Bay Area Governments have committed to preparing an update of the Plan by October 1984. By that time it is expected that more specific information will be available on the effectiveness of each of the adopted control programs as well as on the impact of the control program on ozone levels in neighboring air basins.



TABLE 1. SUMMARY OF PROPOSED CONTROL MEASURES AND THEIR IMPACTS

RECOMMENDATIONS	DIRECT BENEFITS (EMISSION REDUCTIONS, TONS/DAY) 1987	IMPLEMENTING AGENCY(S)	SCHEDULE FOR ACTION A-ADOPTION I-FULLY IMPL- MENTED	TOTAL COST/YEAR OF RECOMMENDED ACTION	FINANCING MECHANISM	LEGAL AUTHORITY
<b>I. MOTOR VEHICLE INSPECTION AND MAINTENANCE</b>						
Implement annual inspection/maintenance program to ensure that motor vehicles in the light-duty auto, light- and medium-duty truck classes have operating emissions controls and that they conform to prescribed emissions standards.	Carbon monoxide: 367  Hydrocarbons: 29	California Department of Consumer Affairs	A-1984 I-1987	\$31,500,000	-State General Fund  -I/M Program Revenues	New legislation required.

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<p><u>Air Quality</u></p> <ul style="list-style-type: none"> <li>o See "Direct Benefits" column.</li> </ul> <p><u>Water Quality</u></p> <ul style="list-style-type: none"> <li>o No impact.</li> </ul> <p><u>Physical Resources</u></p> <ul style="list-style-type: none"> <li>o Reducing emissions of air pollutants will have a beneficial impact on vegetation and other man-made materials which are currently being damaged by such pollutants. These beneficial effects will result from this strategy as well as the others being proposed in this plan.</li> </ul> <p><u>Energy Resources</u></p> <ul style="list-style-type: none"> <li>o No impact.</li> </ul>	<p><u>Institutional</u></p> <ul style="list-style-type: none"> <li>o Specific institutional arrangements will have to be developed, since I/M is not within the current authority of any State or local agency. The California Department of Consumer Affairs would likely assume responsibility for the regulation and operation of these programs. Local government agencies' involvement is not anticipated.</li> <li>o I/M programs can be directly administered by the State or franchised out to private contractors; due to the disproportionate demands on State administrative resources demonstrated by the South Coast Air Basin, a private-operated/public-monitored program may be preferable for the Bay Area.</li> </ul> <p><u>Financial</u></p> <p>Direct Public Cost of Implementation</p> <ul style="list-style-type: none"> <li>o See column headed "Total Cost/Year of Recommended Action".</li> </ul> <p>Fiscal Effect on Local Government</p> <ul style="list-style-type: none"> <li>o No impact.</li> </ul>	<p><u>Production of Goods and Services</u></p> <ul style="list-style-type: none"> <li>o Implementation of I/M measures would add a new line of service for the California automotive service industry. Some services presently exist for identifying defective emission control equipment, but they are not universally applicable to all California registered vehicles. I/M programs for light-, medium-, and heavy-duty vehicles would offer a universally applied service program for identification and repair of vehicles with excessive emissions caused by maladjusted or defective emission control equipment.</li> </ul> <p><u>Consumer Expenditures</u></p> <ul style="list-style-type: none"> <li>o I/M consumer costs are comprised of the inspection fee and related maintenance and repair costs which may be incurred. The inspection fee will probably not exceed \$15, and the average cost of repairs for the failed vehicle is approximately \$30.</li> </ul> <p><u>Income and Investment</u></p> <ul style="list-style-type: none"> <li>o See private costs in the column headed "Total Costs/Year of Recommended Action."</li> <li>o Improved maintenance may prolong vehicle life.</li> </ul>	<p><u>Housing Supply</u></p> <ul style="list-style-type: none"> <li>o No impact.</li> </ul> <p><u>Physical Mobility</u></p> <ul style="list-style-type: none"> <li>o Because of the increased cost of private transportation, the mobility of the limited income segment of the Bay Area population may be reduced, particularly for those in other than urban areas.</li> </ul> <p><u>Health and Safety</u></p> <ul style="list-style-type: none"> <li>o The substantial reduction in emissions of carbon monoxide and hydrocarbons from this measure could produce substantial health-related benefits, particularly for high risk groups and those who experience the heaviest exposures while residing, working or shopping in urban centers.</li> </ul> <p><u>Sense of Community</u></p> <ul style="list-style-type: none"> <li>o No impact.</li> </ul> <p><u>Equity</u></p> <ul style="list-style-type: none"> <li>o Older vehicles generally need more extensive repairs; this may place a special financial burden on lower-income persons who are more likely to own older vehicles.</li> </ul>

RECOMMENDATIONS	DIRECT BENEFITS (EMISSION REDUCTIONS, TONS/DAY) 1987	IMPLEMENTING AGENCY(S)	SCHEDULE FOR ACTION A-ADOPTION I-FULLY IMPL- MENTED	TOTAL COST/YEAR OF RECOMMENDED ACTION	FINANCING MECHANISM	LEGAL AUTHORITY
<b>II. STATIONARY SOURCE CONTROLS</b>						
1. Tanker Ballasting: Use segregated ballast or washed ballast tank and inert gas system for tankers larger than 40,000 DWT	2.5	U.S. Coast Guard	A, I-1981	No direct costs	Administrative/ Regulatory -ad valorem tax revenues -ARB subvention funds -Federal Clean Air Act funds -permit fees	The Bay Area Air Quality Management District (BAAQMD) was created by the California Legislature in 1955. The Dis- trict structure, operating pro- cedures and authority are con- tained in Divi- sion 26 of the California Health and Safety Code.
2. Reciprocating Engines: Replace 2-cycle engines with 4-cycle; replace 4-cycle engines with electric motors where possible	4.0	Bay Area Air Quality Management District (BAAQMD)	A-1984 I-1985	\$290,000	Operating/ Maintenance -private	
3. Gasoline Distribution: Lower exemption cutoffs to require Phase I, II controls at additional service stations	1.0	BAAQMD	A-1985 I-1985	\$180,000	Capital -private -California Pollution Control fi- nancing authority	
4. Pesticides: Ban weed oil; use water or other non-VOC carriers; limit overspray	3.7	BAAQMD	A-1984 I-1984	\$530,000	-Federal Small Business Ad- ministration loan programs	
5. Wood Furniture Coating: Use low solvent coatings and high transfer efficiency spray methods	1.1	BAAQMD	A-1985 I-1986	\$200,000		
6. Organic Chemical Manufacturing: Requires control of VOC fugitive emissions from pumps, compressors, process vessel depressurization and process relief valves	0.3	BAAQMD	A-1986 I-1986	\$58,000		
7. Aerospace Assembly & Component Coating Operations: reformulate paints by converting to waterbased or high-solids paints or substituting non-reactive solvents for reactive ones in conventional paints	0.5	BAAQMD	A-1982 I-1983	\$180,000		
8. Consumer Solvents: Reduce VOC content/reactivity after product-by-product review.	4.0	BAAQMD	A-1985 I-1985	\$600,000		
9. Coating of Plastics: Use low-solvent coatings or equivalent control by condensation, adsorption, incineration, etc.	2.0	BAAQMD	A-1985 I-1985	\$730,000		
10. Semiconductor/PC Manufacturing: Use condensation, adsorption, etc. to control solvent emissions.	5.7	BAAQMD	A-1983 I-1984	\$7,900,000		
11. Industrial Maintenance Coatings: Use low-solvent coatings for some industrial maintenance applications	1.0	BAAQMD	A-1985 I-1986	\$370,000		

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<p><u>Air Quality</u></p> <ul style="list-style-type: none"> <li>o See "Direct Benefits" column.</li> </ul> <p><u>Water Quality</u></p> <ul style="list-style-type: none"> <li>o No impacts.</li> </ul> <p><u>Physical Resources</u></p> <ul style="list-style-type: none"> <li>o Conservation of 10,000 to 12,000 gals/day of volatile organic compounds. (Approx. \$4 million per year.)</li> <li>o Some rules (best available control technology) would consume construction materials, water, disposal facilities, etc.</li> </ul> <p><u>Energy Resources</u></p> <ul style="list-style-type: none"> <li>o Use of BACT (5 or 6 measures) and, in some cases, lowest attainable emission rate (1 or 2) may result in a net energy penalty.</li> </ul> <p><u>Public Facilities</u></p> <ul style="list-style-type: none"> <li>o No serious impact other than landfill sites which may use land owned by either public or private parties.</li> </ul>	<p><u>Institutional</u></p> <ul style="list-style-type: none"> <li>o The governmental structure for implementing these control measures already exists in the Bay Area Air Quality Management District (BAAQMD) which actively enforces air pollution control programs in the Bay Area. The proposed amendments are an expansion of existing organic emission rules to cover new categories of sources, or are more stringent extensions of measures already in force for control of industrial and stationary sources of air pollution.</li> </ul> <p><u>Financial</u></p> <p><u>Direct Public Costs of Implementation</u></p> <ul style="list-style-type: none"> <li>o See "1982 Costs of Recommended Control Actions" column; annualized costs of \$24 million to \$62 million per year.</li> </ul> <p><u>Fiscal Effects on Local Government</u></p> <ul style="list-style-type: none"> <li>o Increased costs to BAAQMD may be 6% of District's budget, or \$600,000/year. Other local governmental costs are minimal except for landfill sites, which are not clear at this time. The governmental structure for the implementation of these control measures already exists in the Bay Area Air Quality Management District, as mentioned above.</li> </ul> <p><u>Income and Investments</u></p> <ul style="list-style-type: none"> <li>o See column "1982 Costs of Recommended Control Action."</li> </ul>	<p><u>Production of Foods and Services</u></p> <ul style="list-style-type: none"> <li>o Increased technological dependence by the Bay Area industrial sector to improve regional air quality will require substantial capital investment. In some instances, these added restrictions and costs will adversely affect the competitive position of local industries inter-regionally where the cost of these investments may be passed on to the consumers.</li> <li>o Measures pertaining to coatings, waste disposal and consumer solvents will require that process changes occur in order to reduce levels of air pollution. Changed product composition resulting from different processes may cause reduced durability and increased liability potentials. Phased implementation of this program may help minimize these problems.</li> <li>o Special consideration may be needed for the food processing industry in meeting health standards.</li> </ul> <p><u>Consumer Expenditures</u></p> <ul style="list-style-type: none"> <li>o Direct costs of implementing these measures will initially fall upon industry but eventually be paid by the consumer and local taxpayer. This type of expenditure will not increase productivity but cause inflationary activity. Also, higher prices for Bay Area products may cause non-Bay Area consumers to look elsewhere for the same product. In either case, the proposed controls will result in increased cost of consumer goods.</li> </ul>	<p><u>Housing Supply</u></p> <ul style="list-style-type: none"> <li>o No impacts.</li> </ul> <p><u>Physical Mobility</u></p> <ul style="list-style-type: none"> <li>o No impact.</li> </ul> <p><u>Health and Safety</u></p> <ul style="list-style-type: none"> <li>o Air quality standards for each of the pollutants are based upon scientifically derived air quality criteria. Air quality criteria are an expression of current information concerning the relationship between various concentrations of pollutants in the air and their adverse effects on man and his environment. The control measures being proposed are designed to meet the standards, i.e., to reduce the concentration of various pollutants in the air. Pollutant concentration reductions from the air will reduce potentially adverse effects from these substances, thereby favorably impacting public health.</li> </ul> <p><u>Sense of Community</u></p> <ul style="list-style-type: none"> <li>o With regard to safety, the stationary source control program may eliminate many hazards associated with the use and storage of combustible solvents.</li> </ul> <p><u>Equity</u></p> <ul style="list-style-type: none"> <li>o A major question of equity involves the competitive position of Bay Area industries that are placed under the restrictions and controls proposed. Employment opportunities created in local industries producing air pollution control equipment will not offset increased unemployment resulting from the competitive disadvantage (see "Production of Goods and Services"). The willingness of EPA and CARB to require similar measures outside of the Bay Area is of obvious concern to the region.</li> </ul>

RECOMMENDATIONS	DIRECT BENEFITS (EMISSION REDUCTIONS, TONS/DAY) 1987	IMPLEMENTING AGENCY(S)	SCHEDULE FOR ACTION A-ADOPTION I-FULLY IMPL- MENTED	TOTAL COST/YEAR OF RECOMMENDED ACTION	FINANCING MECHANISM	LEGAL AUTHORITY
<b>II. STATIONARY SOURCE CONTROLS (Cont'd.)</b>						
12. VOC Storage: Lower control requirement cut-offs from 1.5 psia and 40,000 gallons to 0.5 psia and/or 10,000 gallons	3.0	BAAQMD	A-1985 I-1985	\$990,000		
13. Large Commercial Bakeries: Control oven VOC emissions from large commercial bakeries	1.1	BAAQMD	A-1986 I-1986	\$400,000		
14. Zero Gap Seals on Floating Roof Tanks: Install "zero gap" seals on most floating roof tanks	1.5	BAAQMD	A-1985 I-1986	\$22,000		
15. Polymer & Resins Manufacturing: Use condensation, adsorption to control VOC emissions from reactor vessels, etc.	0.2	BAAQMD	A-1986 I-1987	\$120,000		
16. Rubber / Plastic Products Manufacturing: Use condensation, adsorption or incineration to control VOC emissions from molding, curling, cementing, etc.	1.1	BAAQMD	A- 1986 I-1986	\$640,000		
17. Coatings Manufacturing: Requires control of VOC emissions from reactors, blenders, mixers, and transfer and storage	0.2	BAAQMD	A-1986 I-1987	\$150,000		
18. Natural Gas & Crude Oil Production: Requires control of VOC emissions from valves, flanges, pumps, compressors, relief valves and storage tanks	1.6	BAAQMD	A-1986 I-1986	\$440,000		
19. Sanitary Landfill Sites: Install gas collection systems to be combusted directly or separated into a saleable methane portion and non-methane portion to be incinerated	7.2	BAAQMD	A,I-1984	\$9,500,000		
20. Vegetable Oil Manufacturing: Use mineral oil scrubber and proper maintenance/operation per draft EPA CTG for extractors, desolventizers, dryers, coolers and conveyers	0.4	BAAQMD	A-1986 I-1987	\$150,000		
21. Volatile Organic Waste Disposal: Strip and recover VOC from wastes prior to disposal	6.0	BAAQMD	A-1984 I-1985	\$5,200,000		
22. Automobile Refinishing:	5.2	BAAQMD	A-1984 I-1985	\$5,400,000		
23. Letterpress/Offset Printing:	3.0	BAAQMD	A-1985 I-1985	\$2,000,000		

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
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See preceding page.

RECOMMENDATIONS	DIRECT BENEFITS (EMISSION REDUCTIONS, TONS/DAY) 1987	IMPLEMENTING AGENCY(S)	SCHEDULE FOR ACTION A-ADOPTION I-FULLY IMPL- MENTED	TOTAL COST/YEAR OF RECOMMENDED ACTION	FINANCING MECHANISM	LEGAL AUTHORITY
<b>III. TRANSPORTATION CONTROLS</b>						
1. Reaffirm commitment to 28% transit ridership increase between 1978 and 1983.	Included in 1979 Air Quality Plan - no additional credits are claimed.	Metropolitan Transportation Commission (MTC), transit districts.	Measure is currently being implemented, with a 26% increase in ridership resulting in the first 3-year period.	Included in Transportation Improvement Program - no additional costs.	-Federal Mass Transportation Assistance Program  -Fare Revenues	-Local Transit District Enabling Legislation  -MTC Enabling Legislation
2. Support post-1983 improvements identified in public transit operators' 5-year plans; after consultation with the operators, adopt ridership increase target for 1983-1987.	Hydrocarbons: 0.72  Carbon Monoxide: 7.15  Nitrogen Oxides: 1.04		A-1982 I-continuing	Costs of maintaining existing level of services is currently programmed in regional allocations. Ridership increases would come from productivity improvements, thus additional costs would be moderate.	-Local Transportation Development Act Funds  -State Mass Transportation Assistance Programs  -Toll Bridge Revenues	
3. Seek to expand and improve public transit beyond committed levels.	Hydrocarbons: 0.37  Carbon Monoxide: 3.69  Nitrogen Oxides: 0.54		MTC seeks new sources of revenue on an ongoing basis; if funding exists, transit operators implement plans to expand services.	Transit operators have submitted capital requests for FY83-87; of these, \$119.4 million cannot be funded with currently anticipated revenues. Additional funds would also be needed for operating subsidies. However, this measure has other benefits so the costs cannot be solely attributed to air quality.		
4. Continue to support development of high-occupancy-vehicle (HOV) lanes.	Depends on specific project. Emission credits would not be allowed for specific projects until environmental studies were completed and funds were programmed.	Caltrans, cities and counties	A-1979 I-varies with the project	Varies by specific project; since these projects have other benefits, the costs cannot be solely attributed to air quality.	-Federal Aid Highway Programs  -State Highway Program Funds	-Caltrans enabling legislation  -Local planning and traffic control enabling legislation
5. Continue to support RIDES efforts; carpool matching and vanpooling.	Emissions credits already included in 1979 Plan - no additional credit is claimed.	RIDES, MTC, Caltrans	A-1979 I-continuing	Funds are already programmed; no additional costs are associated with this measure.	-Federal Aid Highway Programs  -State ride-sharing funds	-Caltrans enabling legislation  -RIDES charter  -MTC enabling legislation
6. Continue efforts to obtain funding to support long range transit improvements (including a light rail line in the Guadalupe Corridor and various BART extensions).	It is likely that none of the projects included in this measure can be implemented prior to 1987, hence no emissions credits are claimed.	MTC, transit districts	A-1979 I-continuing	Project design costs over the next 5 years total \$35 million; construction costs of the Guadalupe project over the next 5 years is \$181 million. <sup>1</sup>	Same as #1.	Same as #1.
7. Reaffirm commitment to preferential parking program: opening more fringe parking lots and free vanpool parking areas.	Emissions credits already included in 1979 Plan - no additional credit is claimed.	Caltrans	A-1979 I-continuing	Costs already included in the Transportation Improvement Program; no additional costs are associated with this measure.	Same as #5.	-Caltrans enabling legislation

1. Due to the range of benefits from these measures the costs cannot be attributed solely to air quality.

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<p><u>Air Quality</u></p> <ul style="list-style-type: none"> <li>o See "Direct Benefits" column.</li> </ul> <p><u>Water Quality</u></p> <ul style="list-style-type: none"> <li>o No impact.</li> </ul> <p><u>Physical Resources</u></p> <ul style="list-style-type: none"> <li>o No impact other than the reduction in damage to vegetation and man-made materials associated with lower pollutant emissions.</li> </ul> <p><u>Energy</u></p> <ul style="list-style-type: none"> <li>o Gasoline savings estimated to be 18-19 million gallons/year from carpooling, the shift to transit, improved traffic flow, and the shift to bicycles..</li> <li>o Minor increase in transit fuel consumption.</li> </ul> <p><u>Amenities</u></p> <ul style="list-style-type: none"> <li>o Cleaner air.</li> <li>o Improved pedestrian environment in auto-control zone.</li> </ul>	<p><u>Institutional</u></p> <ul style="list-style-type: none"> <li>o Organizational and governmental structures necessary to implement these measures are already in existence and, as these are continuations of previously adopted measures, progress in their implementation is already ongoing.</li> </ul> <p><u>Financial</u></p> <ul style="list-style-type: none"> <li>o Certain measures, notably the additional transit services, bus/carpool lanes, and bicycle systems, are rather costly. There is some funding available, but additional funds will be needed.</li> <li>o Other measures would generate revenue which could be used to finance the incentives mentioned above.</li> </ul>	<p><u>Production of Goods and Services</u></p> <ul style="list-style-type: none"> <li>o New employment in the transit sector.</li> <li>o Possible adverse effect on parking lot operators.</li> </ul> <p><u>Consumer Expenditures</u></p> <ul style="list-style-type: none"> <li>o Increase in cost of operating private autos.</li> <li>o Savings to those commuters utilizing carpools, vanpools or transit.</li> </ul>	<p><u>Housing Supply</u></p> <ul style="list-style-type: none"> <li>o No impact.</li> </ul> <p><u>Physical Mobility</u></p> <ul style="list-style-type: none"> <li>o Additional transit service would increase mobility of all transit users.</li> <li>o Carpool/vanpool measures would increase travel options for most commuters.</li> <li>o Some restriction on private auto access in the auto control zone.</li> </ul> <p><u>Health and Safety</u></p> <ul style="list-style-type: none"> <li>o Reduction in auto accidents with improved peak period flow.</li> <li>o Exercise benefits for those who bicycle.</li> <li>o Possible increase in number, but not rate, of bicycle accidents with increased usage.</li> </ul> <p><u>Sense of Community</u></p> <ul style="list-style-type: none"> <li>o No impact.</li> </ul> <p><u>Urban Patterns</u></p> <ul style="list-style-type: none"> <li>o The combination of incentives like additional transit service and disincentives on private auto use will encourage a more compact land use pattern, with employees living closer to transit lines and/or their jobs.</li> <li>o Pricing disincentives will impact primarily middle income commuters who choose to continue driving their cars.</li> </ul>

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<b>III. TRANSPORTATION CONTROLS (Cont'd.)</b>						
8. Encourage transit operators to work with Caltrans to identify underutilized lots along major transit lines which could be used as park-and-ride lots.	Hydrocarbons - 0.4 Carbon Monoxide - 0.19 Nitrogen Oxides - 0.05	Caltrans, transit districts	A-1979 I-continuing	Equivalent annual cost of this measure is \$22,850. <sup>†</sup>	-State Highway Program funds	Same as #7.
9. Expand present Commute Alternatives Program; informing employers of transportation alternatives and training commute coordinators within a firm to promote the goals of the program.	Hydrocarbons - 0.87 Carbon Monoxide - 0.83 Nitrogen Oxides - 0.09	MTC	A-1979 I-continuing train 30 commute coordinators each year	Equivalent annual cost is \$35,420.	-Federal Mass Transit Assistance Programs -Local Transportation Development Act funds -State Ridesharing funds	-MTC enabling legislation
10. Develop information program on traffic and air quality mitigation measures for local government.	Hydrocarbons - 0.69 Carbon Monoxide - 6.04 Nitrogen Oxides - 0.27	MTC, cities and counties	A-1979 I-continuing	Equivalent annual cost is \$13,700 <sup>†</sup>	-Local Transportation Development Act funds -City General Funds	-Municipal zoning enabling legislation
11. Support the expansion of the Gasoline Conservation Awareness (GasCAP) Program currently operating through West Valley Community College-- several additional regional GasCAP training centers are needed for the Bay Area.	Depends upon the number of centers funded, the number of client agencies per center and the fuel use of each client agency--reductions in fuel use of 10-46% have been demonstrated by previous client agencies.	Regional operation concept as follows:  -State Energy Commission and CA Energy Extension Service - provide overall coordination of statewide plan, of which the Bay Area is a part.  -CalTrans - sponsoring agency which receives federal monies and transfers them to statewide coordinating agencies.  -GasCAP-(West Valley Com. College) provides assistance and training to regional center agencies offering program.  -Regional Center Agency - provides regional GasCAP service.	A-1982 I-additional training centers can be operational within 1 year of funding.		-Grant funds are being sought for additional regional centers -Participant fees provide ongoing support.	-None required.
12. Commute Transportation Program	Reduces background CO level 14% from 1987 baseline case.	Santa Clara County Transit District	Measure is currently being implemented.	\$400,000	-Federal Aid Urban Program funds, State ridesharing funds, local Transportation Development Act funds, Urban Mass Transportation Agency Funds.	-Local transit district enabling legislation.

<sup>†</sup> Due to the range of benefits from these measures, the costs cannot be attributed solely to air quality.

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
See preceding page.			

RECOMMENDATIONS	DIRECT BENEFITS (EMISSION REDUCTIONS, TONS/DAY) 1987	IMPLEMENTING AGENCY(S)	SCHEDULE FOR ACTION A-ADOPTION I-FULLY IMPL- MENTED	TOTAL COST/YEAR OF RECOMMENDED ACTION	FINANCING MECHANISM	LEGAL AUTHORITY
<b>IV. ADMINISTRATIVE PROGRAMS</b>						
1. Advisory Review of Projects and Plans: This program is directed toward new or modified facilities, both public and private, and plans that could result in significant impacts on air quality. The three co-lead air quality planning agencies would review plans and proposals and issue comments related to minimizing their adverse air quality impacts as early in the planning stages as possible. The existing California Environmental Quality Act environmental document process would be used as the primary vehicle for receiving information and communicating advisory comments.	Unknown	Association of Bay Area Governments, Metropolitan Transportation Commission, Bay Area Air Quality Management District	A, I-1982	Unknown	-co-lead air quality planning agencies, existing budgets	-Under CEQA any interested parties may participate in the review-and-comment process  -This process, being strictly advisory, would not require further legal authority
2. Conformity Assessment of Federally-Supported Activities: As the area-wide clearinghouse for all Federal grant applications, ABAG's Executive Board comments on Federal grant applications for conformity with regional policies, including provisions of the air and water quality management plans. Hence, assessment of conformity with the provisions of Sections 176(c) and 316 of the Clean Air Act would be formally incorporated into this process. Section 176(c) mandates that agency activities be in conformity with approved plans, and Section 316 outlines the consequences of failure to do so.	Unknown	Association of Bay Area Governments	A, I-1982	Unknown	-existing budgets	-Authority for grant application clearing-house responsibilities comes from the Federal Intergovernmental Cooperation Act and the Federal Demonstration Cities and Metropolitan Development Act
3. Comprehensive Transportation Plan and Air Quality Analysis of Oakland Central Business District (CBD) Development: Downtown Oakland is currently projected to experience significant growth in the Central Business District which may have adverse impacts on traffic circulation and local air quality. Even with an Inspection/Maintenance Program, the Federal 8-hour CO standard may ultimately be exceeded. Therefore, a study of the collective impacts of this growth on traffic circulation and transit use, which will result in the development of mitigation strategies, is recommended as an action that the City of Oakland should undertake.	Unknown - Carbon monoxide levels are of concern	City of Oakland, ABAG, BAAQMD, and MTC	A-1982 I-1983	Unknown	-City of Oakland to fund the transportation assessment portion with ABAG, BAAQMD, and MTC assisting in preparation of the air quality assessment	-None needed

ENVIRONMENTAL IMPACTS	INSTITUTIONAL/FINANCIAL IMPACTS	ECONOMIC IMPACTS	SOCIAL IMPACTS
<p>The environmental impacts of these programs is difficult to assess at this time in other than general terms.</p> <p>As the programs involve prevention of adverse effects on environmental quality (including air, water, energy, physical resources, etc.) through studies, advisory review and conformity assessment, it is anticipated that substantial environmental benefits could result. These benefits are heightened by the fact that the programs result in a comprehensive analysis of both the individual and collective impacts of regional activities with environmental consequences, rather than fragmented analyses and recommendations from several different agency review processes. Thus, the reviewee benefits by advice and assessments, and the reviewers benefit by focusing on major environmental problems together.</p>	<p><u>Institutional</u></p> <ul style="list-style-type: none"> <li>o Both of the first two administrative programs utilize institutional structures and policies that are already in existence, and into which these proposed activities fit easily</li> <li>o Where necessary, special relationships would be established with local jurisdictions having air pollution control problems which require individual attention, such as the Oakland CO problem targeted by the third proposal.</li> </ul> <p><u>Financial</u></p> <ul style="list-style-type: none"> <li>o As the first two proposed administrative activities are merely more formalized versions of activities that are currently being done by the agencies indicated, there would be no impact on their financial resources.</li> <li>o The impact study of the Oakland CBD would require city funds, which would likely be diverted from other potential uses.</li> </ul>		<p>As with the environmental impacts, the economic and social impacts of these programs is difficult to assess at the outset. The existence of coordinated, comprehensive regional plans whose purpose is to minimize adverse and maximize positive effects on economic, social and environmental resources provides a framework within which these two administrative programs will function. Consequently, the review process and comments utilized on these programs will reflect these adopted regional policies and will result in minimal negative and maximal positive impacts on the various resources of concern.</p>



PART THREE  
Technical Memoranda Used in the 1982 Plan



Technical Memorandum No. 26, "Carbon Monoxide in the San Francisco Bay Area: The Problem and Approach to CO Plan Development," September 1978.

Technical Memorandum No. 27, "Summary of 1978-79 Pilot CO Hotspot Monitoring Program," November 1979.

Technical Memorandum No. 28, "Comparability of Ambient CO Hotspot Monitoring Techniques," February 1980.

Technical Memorandum No. 29, "Evaluation and Selection of Carbon Monoxide Dispersion Models for Use in the 1982 Plan," June 1980.

Technical Memorandum No. 30, "Assessing the Impacts of Air Quality Plans: Reviews and Recommendations," September 1980.

Technical Memorandum No. 31, "Selection of Biogenic Hydrocarbon Emission Factors for Land Cover Classes Found in the San Francisco Bay Area," January 1981.

Technical Memorandum No. 32, "Air Quality Status Report: 1979," May 1980.

Technical Memorandum No. 33, "Summary of 1979-80 CO Hotspot Monitoring Program," June 1980.

Technical Memorandum No. 34, "Energy Assumptions for the 1982 Plan," April 1981.

Technical Memorandum No. 35, "Compilation of a Biogenic Hydrocarbon Emissions Inventory for the Evaluation of Ozone Control Strategies in the San Francisco Bay Area," March 1981.

Technical Memorandum No. 36, "Present and Projected Emissions in the San Francisco Bay Area 1979-1987," August 1982.

Technical Memorandum No. 37, "Air Quality Status Report: 1980," August 1981.

Technical Memorandum No. 38, "Resource Recovery and Cogeneration Projects in the 1982 Plan," September 1981.

Technical Memorandum No. 39, "Assessment of the Economic Impacts of New Source Review (NSR) on Selected Manufacturing Sectors in the San Francisco Bay Region," August 1981.

Technical Memorandum No. 40, "Results of the 1980-81 Hotspot Monitoring Program for Carbon Monoxide," January 1982.

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